



**TETRA TECH, INC.**

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Bothell, Washington 98011  
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September 9, 2016

Sarah Telschow, AICP  
Odelia Pacific Corporation  
5506 6<sup>th</sup> Avenue South, Suite 202  
Seattle, Washington 98108

**RE: King County Puget Sound Emergency Radio Network (PSERN)  
Redmond, WA Education Hill Site  
Critical Areas Report Request**

Dear Ms. Telschow:

This letter is in response to your email requests dated August 2 and August 4, 2016 to provide a revised Critical Areas Report (CAR) on the subject site located at 10365 172<sup>nd</sup> Avenue NE in the City of Redmond, in urban King County, Washington 98052. On June 27, 2016 Tetra Tech provided Odelia Pacific Corporation a limited desktop assessment of critical area conditions report based on previous correspondence with you informing us that City of Redmond sources had indicated that a full CAR would not be required because no critical areas had been identified at the subject site. Since submittal of the June 27, 2016 CAR, the City of Redmond has requested additional information be provided including a Level One Hydrogeologic Assessment, Priority Habitat and Protected Species information, and a Habitat Unit Assessment form. The additional information requested by the City of Redmond is discussed below with specific details included as attachments to this CAR.

King County is proposing to construct a 170-foot-high steel monopole structure on the site to support a new microwave antenna, place ancillary equipment cabinets and a backup generator on site, and surround the site with chain-link fencing. The facilities would be operated as part of the Puget Sound Emergency Radio Network (PSERN). The facilities would be constructed within a 49.5-foot by 40-foot proposed lease area located near the center of a 4.8-acre parent parcel in a predominantly residential area on Education Hill in Redmond. The parent parcel is owned by the City of Redmond. Most of the northern half of the parcel has been developed to support City water supply system facilities, including two cylindrical, steel water storage tanks and a pump house. The water system facilities are enclosed by an existing chain-link fence. The remainder of the parcel is undeveloped and has a vegetative cover of mature conifer and deciduous trees and understory plants. The parent parcel is abutted on the north by NE 104<sup>th</sup> Street; on the east by 172<sup>nd</sup> Avenue NE; on the south by undeveloped land within a parcel on which a Church of Latter-Day Saints facility is located; and on the west by Horace Mann Elementary School. Sports fields within Jonathan Hartman Park are located to the east of 172<sup>nd</sup> Avenue NE, and single-family residential development and the Redmond High School campus are located north of NE 104<sup>th</sup> Street.

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## INVESTIGATION ACTIVITIES AND RESULTS

Tetra Tech's desktop assessment of the site included a thorough review of the following information sources:

1. The PSERN Education Hill site plan set for the facility, prepared by Camp + Associates and dated June 2, 2016.
2. Redmond Zoning Code (RZC) critical areas regulations (RZC 21.64 – 21.72) and the associated reporting requirements identified in RZC Appendix 1.
3. City of Redmond Geographic Information System (GIS) mapping of environmental resources within the City.
4. Google mapping and imagery for the local area.

The assessment was conducted by several Tetra Tech staff including Mr. Chris Lawson, a Senior Environmental Planner; Mr. Steve Negri, a Senior Wildlife Biologist; and Mr. Jeremy Dierking, a Geotechnical Engineer. Tetra Tech staff have extensive experience with local, state and federal permit requirements, and is thoroughly familiar local regulation of critical areas under the guidance of the Washington Growth Management Act.

The City of Redmond identifies and regulates the following as critical areas: fish and wildlife habitat conservation areas; wetlands; frequently flooded areas; geologically hazardous areas; and critical aquifer recharge areas (RZC 21.64.010B). Specified buffers associated with these features are also regulated under the code.

Based on the information reviewed during the assessment, existing conditions at the site in relation to the respective categories of critical area features are summarized as follows:

1. Fish and Wildlife Habitat Conservation Areas.

As noted above, the proposed lease area is a small portion of a 4.8-acre parent parcel that is partially developed with water system facilities and partially tree-covered. The proposed lease area is immediately adjacent to the fence enclosing the water system facilities on the parcel. The northern edge of the lease area is approximately 30 feet from the pump house and asphalt access drive on the parcel, 120 feet from the larger water tank, and 130 feet from 172<sup>nd</sup> Avenue NE, a paved, two-lane roadway. The Redmond GIS map titled *Fish and Wildlife Habitat Conservation Areas (Core Preservation Areas)*, provided in Attachment A, identifies the adjacent Jonathan Hartman Park as a feature in the Park and Open Space category. Although forest cover remains in the southeastern portion of Hartman Park, the northwestern part of the park adjacent to the parent parcel includes a set of four baseball fields, a parking area, a paved basketball court, and a large soccer field with artificial turf. The Redmond GIS map titled *Critical Areas Map, Map 64.3 Streams Classification* identifies a Class III stream beginning near the south edge of Hartman Park, approximately 0.3 mile to the southeast of the lease area, and flowing to the southeast. No other stream features identified on this map are located closer to the lease area. Therefore, there does not appear to be any fish habitat located near the project site. The undeveloped portion of the parent parcel likely provides some wildlife habitat value, although the value would be limited by the small size of the undisturbed area and the influence of structures intensive human uses on adjacent parcels.

On August 4, 2016, Tetra Tech was requested to determine if any WDFW Priority Habitat or Protected Species could be present on the subject site, and to complete the City of Redmond Habitat Unit Assessment Form. Provided in Attachment A is a letter prepared by Mr. Steve Negri, a Senior Wildlife Biologist for Tetra Tech, that includes the City of Redmond Habitat Unit Assessment Form, and conclusions and recommendations for the project following further assessment of this site.

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## 2. Wetlands

The Redmond GIS map titled *Wetlands Critical Areas Map*, provided in Attachment B, identifies known wetland features within the City and is intended for use as a general reference, rather than as a definitive record of all wetland areas within the City. The map identifies a relatively large wetland area along the southern edge of Jonathan Hartman Park and extending to the south. This wetland is more than 0.2 mile from the proposed lease area, and is the closest known wetland identified on the map. The closest water feature (which could have associated wetland resources) identified on the wetland map appears to be at least 0.3 mile to the northeast. The site plan (Sheet 5) indicates the developed portion of the parent parcel slopes gradually from elevation 400 feet to 396 feet, and does not identify any existing low areas that might be natural drainage features where water might collect.

## 3. Frequently Flooded Areas

The Redmond GIS map titled *Frequently Flooded Areas Critical Areas Map*, provided in Attachment C, identifies known floodplain and FEMA floodway features within the City. The frequently flooded areas shown on this map that are closest to the lease area are located along Bear Creek, about 1 mile to the east, and along the Sammamish River, about 0.8 mile to the west. The Redmond GIS map titled *Critical Areas Map, Map 64.3 Streams Classification*, provided in Attachment C, identifies a Class III stream beginning near the south edge of Hartman Park (evidently draining from the wetland area noted above), approximately 0.3 mile to the southeast of the lease area, and flowing to the southeast. No other stream features identified on this map are located closer to the lease area. Interpretation of the City maps of frequently flooded areas and streams indicates that no water features capable of causing even localized flooding are located on or close to the proposed lease area or the parent parcel.

## 4. Geologically Hazardous Areas

Geologically hazardous areas as defined in the RZC include areas susceptible to erosion, sliding, earthquake, or other geological events. Available Redmond GIS products include an *Erosion Hazard Areas Critical Areas Map* and *Critical Areas Map, Map 64.7 Landslide Hazards*, which are provided in Attachment D. Both maps depict a pattern of hazards in steeply sloping areas along the southeast and westerly margins of Education Hill and in prominent ravines; none of the mapped hazard areas are within 0.25 mile of the proposed lease area. As noted above, the project site is very gently sloping and has an elevation change across the site of approximately 4 feet. The City's *Seismic Hazard Areas Critical Areas Map* indicates that the valley floor areas along Bear Creek and the Sammamish River are considered to be seismic hazard areas, likely based on the potential for soil liquefaction in those areas. The proposed lease area is located at least 0.8 mile from any of the identified seismic hazard areas.

## 5. Critical Aquifer Recharge Areas

With respect to critical aquifer recharge areas, the City has assigned all locations within the city limits to one of four wellhead protection zones that are defined based on groundwater travel time to any water supply well owned by the City. The official *Wellhead Protection Zones* map, provided in Attachment E, indicates that the proposed lease area and the parent parcel are within Wellhead Protection Zone 3, which represents the area in the 5-year and 10-year travel time zones to any City well, exclusive of the areas within Wellhead Protection Zones 1 or 2 (the 6-month and 1-year travel time zones, respectively). Certain land uses or activities that are considered to represent a significant hazard to the City's groundwater resources are prohibited in Zones 1 and 2. Development activity within Zone 3 is required to comply with specified performance standards for vehicle fueling, maintenance and storage areas; loading and unloading areas; well construction and operation; fill materials; cathodic protection wells; underground hydraulic elevator cylinders; and best management practices identified in Section D of RZC 21.64.050.

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On August 2, 2016, Tetra Tech was requested to perform a Level I Hydrogeological Assessment. Provided in Attachment E is a Level I Hydrogeological Assessment prepared by Mr. Jeremy Dierking, a Geotechnical Engineer for Tetra Tech. On-site BMPs will consist of temporary erosion/sediment control silt fences during construction, and consist of sheet flow dispersion post-construction. All impervious areas on the site will be managed with sheet flow, including the equipment shelter, leased area, and access road. Cross slopes along the access road and leased area will be a minimum of 2%, and runoff will be dispersed into vegetated buffers and soil amendments as shown in attached project plan Sheets C1.1, C2.1 and C3.1. Regarding fuel storage, King County is proposing to install a 2,000 gallon aboveground fuel storage tank. The proposed tank meets secondary containment requirements. During fueling activities, drip pans or absorbent materials will be placed under all potential drip and spill locations; spill control measures/spill kits will be placed near the tank and any liquid transfer areas; and a spill control plan will be available.

## CONCLUSIONS AND RECOMMENDATIONS

The objective of this assessment was to identify whether any of the conditions present at the project site represent environmental features subject to regulation as critical areas under RZC 21.64. Based on the findings of the site review discussed above, Tetra Tech believes that a detailed on-site investigation would not result in the identification of any fish and wildlife habitat conservation areas, wetlands, frequently flooded areas, or geologically hazardous areas on the proposed lease area, on the parent parcel, or in immediately adjacent areas. Because the site is within Wellhead Protection Zone 3, the applicant will need to comply with the applicable performance standards and BMPs relative to aquifer recharge areas. In our estimation, no further investigation of critical areas appears to be warranted at this time.

Tetra Tech appreciates the opportunity to have worked with you on this project and we look forward to working with you in the future. If you have any questions or require additional information please feel free to call me directly at (425) 482-7811.

Sincerely,



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Paul Bean  
Environmental Scientist  
Tetra Tech, Inc.

### Attachments

- Attachment A. Fish and Wildlife Habitat Conservation Areas
- Attachment B. Wetlands Critical Areas Map
- Attachment C. Frequently Flooded Areas Critical Areas and Streams Classifications Map
- Attachment D. Erosion Hazard Areas, Landslide Hazards, Seismic Hazard Areas Maps
- Attachment E. Level One Hydrogeologic Assessment



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**ATTACHMENT A**  
**FISH AND WILDLIFE HABITAT CONSERVATION AREAS**



**TETRA TECH, INC.**

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On August 4, 2016, Tetra Tech was requested to provide additional information in support of the CAR. Specifically, Tetra Tech was requested to determine if any WDFW Priority Habitat or Protected Species could be present on the subject site, and complete the City of Redmond Habitat Unit Assessment Form. The following information sources were used in support of this effort:

1. A one day site visit conducted on August 7, 2016, by Steve Negri. Mr. Negri is a Senior Wildlife Biologist located in our Bothell, Washington office and has more than 20 years of experience working in the Northwest, and is thoroughly familiar with the local flora and fauna.
2. The Washington Department of Fish and Wildlife Priority Habitats and Species (PHS) database.
3. The U.S. Fish and Wildlife Information for Planning and Conservation (IPaC) database.

The completed Habitat Unit Assessment Form is attached to this letter (Attachment 1), as well as photos of the subject site (Attachment 2). Below is a brief summary of the results of our one day site visit and review of the PHS and IPaC databases.

The habitat on the 4.8-acre parent parcel is characterized as a mature forest stand containing a mix of conifer species with pockets of alder (*Alnus rubra*) and Bigleaf maple (*Acer macrophyllum*). Overstory species included Douglas-fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), and western red cedar (*Thuja plicata*). Understory species include alder, and sapling bigleaf maples and cedars. Native ground cover consisted primarily of sword fern (*Polystichum munitum*) and salal (*Gaultheria shallon*). Invasive plants species (Himalayan blackberry [*Rubus armeniacus*] and English ivy [*Hedera helix*] are abundant within the understory. English laurel [*Prunus laurocerasus*]) was also noted in two places along the western boundary of the parent parcel.

The parent parcel is not connected to other wildlife habitat areas. The northern portion of the site has been developed to support City's water supply system facilities, including two cylindrical steel water storage tanks and a pump house. The water system facilities are enclosed by an existing chain-link fence. The remainder of the parcel is bordered on all sides by suburban developments. Noise from the adjacent playgrounds/fields and the water pump house is noticeable throughout the parcel.

Wildlife species identified during the field investigation included the evidence of pileated woodpecker (*Hylatomus pileatus*) foraging, and observations of gray squirrel (*Sciurus carolinensis*), Stellar's Jay (*Cyanocitta stelleri*), spotted towhee (*Pipilo maculatus*), and Oregon junco (*Junco hyemalis*). The pileated woodpecker is a WDFW Priority species (i.e., a State candidate species); however, it was not identified when reviewing the PHS online mapper database. No other WDFW Priority Species or Priority Habitats were noted to occur in the immediate vicinity of the parent parcel (Attachment 3).

Review of the U.S. Fish and Wildlife IPaC database indicated that the following federally listed species have the potential to occur in this portion of King County: marbled murrelet (*Brachyramphus marmoratus*), streaked horned lark (*Eremophila alpestris strigata*), yellow-billed cuckoo (*Coccyzus americanus*), wolverine (*Gulo*

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*luscus*), and bull trout (*Salvelinus confluentus*). However, suitable habitat is not present and the subject site is not capable of supporting these species. As a result, these federally listed species are not expected to occur within or near the subject site.

## **CONCLUSIONS AND RECOMMENDATIONS**

In order to protect the WDFW Protected Species identified on the subject site (i.e., the pileated woodpecker), Tetra Tech recommends the following recommendations: (1) Retain snag if possible near clearing boundary, (2) move existing dead/down logs, intact to degree possible, to areas outside of lease area boundary; (3) Provide 3 new logs  $\geq 15$  inches in diameter and at least 10 feet in length, and place outside of lease area boundary, and (4) clear during fall/winter months to avoid general avian species nesting periods.

### **Attachments**

- Attachment 1: City of Redmond Habitat Unit Assessment Form
- Attachment 2: Photos of the Subject Site
- Attachment 3: WDFW PHS Online Mapper Output

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**ATTACHMENT 1**

**CITY OF REDMOND HABITAT UNIT ASSESSMENT FORM**



## CITY OF REDMOND HABITAT UNIT ASSESSMENT FORM

**HABITAT UNIT:** Education Hill-Parcel #362605-9031  
**LOCATION:** 10365 172nd Avenue, Redmond, WA 98052  
**TOTAL SCORE:** 11

| Habitat Parameter                   | Scoring Criteria  | Habitat Unit Score |
|-------------------------------------|---|--------------------|
| <b>Size</b>                         | <ul style="list-style-type: none"> <li>• &gt;50 acres = 3 points</li> <li>• 10-50 acres = 2 points</li> <li>• 0-10 acres = 1 point</li> </ul>   | 1                  |
| <b>Vegetation Community Types</b>   | <ul style="list-style-type: none"> <li>• ≥ 4 types = 3 points</li> <li>• 2-3 types = 2 points</li> <li>• 1 type = 1 point</li> <li>• None = 0 points</li> </ul>   | 1                  |
| <b>Community Interspersion</b>      | <ul style="list-style-type: none"> <li>• High = 3 points</li> <li>• Medium = 2 points</li> <li>• Low = 1 point</li> <li>• None = 0 points</li> </ul>  | 0                  |
| <b>Priority Species Presence</b>    | <ul style="list-style-type: none"> <li>• Threatened &amp; Endangered Species = 3 points</li> <li>• Candidate Species = 2 points</li> <li>• Monitor Species = 1 point</li> <li>• None = 0 points</li> </ul>        | 2                  |
| <b>Priority Species Habitat Use</b> | <ul style="list-style-type: none"> <li>• Breeding = 3 points</li> <li>• Roosting = 2 points</li> <li>• Foraging = 1 point</li> <li>• None = 0 points</li> </ul>   | 1                  |
| <b>Habitat Continuity</b>           | <ul style="list-style-type: none"> <li>• Links protected habitats = 3 points</li> <li>• Links unprotected habitats = 2 points</li> <li>• Extends habitat corridor = 1 point</li> <li>• None = 0 points</li> </ul> | 0                  |
| <b>Forest Vegetation Layers</b>     | <ul style="list-style-type: none"> <li>• 3 layers = 3 points</li> <li>• 2 layers = 2 points</li> <li>• 1 layers = 1 point</li> <li>• None = 0 points</li> </ul>   | 2                  |
| <b>Forest Age</b>                   | <ul style="list-style-type: none"> <li>• Mature = 3 points</li> <li>• Pole = 2 points</li> <li>• Seedling/Shrub = 1 point</li> <li>• None = 0 points</li> </ul>   | 3                  |
| <b>Invasive Species Presence</b>    | <ul style="list-style-type: none"> <li>• 0-25% = 3 points</li> <li>• 26-50% = 2 points</li> <li>• 51-75% = 1 point</li> <li>• 75-100% = 0 points</li> </ul>   | 1                  |

## **CITY OF REDMOND HABITAT UNIT ASSESSMENT FORM**

### **VEGETATION COMMUNITY TYPES:**

Mature forest stand containing a mix of conifer with pockets of alder (*Alnus rubra*) and bigleaf maple (*Acer macrophyllum*). Overstory species included Douglas-fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), and western red cedar (*Thuja plicata*). Understory species include alder, and sapling bigleaf maples and cedars. Native ground cover consisted primarily of sword fern (*Polystichum munitum*) and salal (*Gaultheria shallon*); however, the majority of the unit also contains invasive plant species such as Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*), and laurel (*Daphne laureola*).

### **INVASIVE PLANTS:**

Invasive plant species make up approximately 51 to 75 percent of the ground cover within the habitat unit. Species identified include Himalayan blackberry, English ivy, and spurge laurel.

### **HABITAT FEATURES (snags, perches, downed logs, etc):**

There are a number of snags and downed woody material throughout the habitat unit; including the area that would be cleared for the cell tower. A possible old nest platform was documented approximately 2/3 up an 28-inch DBH Douglas-fir located west of the proposed lease area. WDFW PHS information was reviewed online as well as the City of Redmond critical areas mapping. No wetlands or streams exist on this parcel. In addition, although there are mature trees on site, the area is not large enough to be categorized as a mature/old growth area nor is there sufficient connectivity to Hartman Park.

### **WILDLIFE OBSERVATIONS (direct or indirect):**

Evidence of pileated woodpecker (*Hylatomus pileatus*) foraging was noted on an alder snag near the south end of the parcel adjacent to a foot trail. Pileated woodpecker foraging was also noted on a Douglas-fir snag within the cell tower's proposed footprint. Several of the alder snags contained old nest holes made by other cavity nesting species. Other species documented include gray squirrel (*Sciurus carolinensis*), Stellar's Jay (*Cyanocitta stelleri*), spotted towhee (*Pipilo maculatus*), and Oregon junco (*Junco hyemalis*). No Federally listed species are suspected to occur in the habitat unit as habitat does not exist.

### **THREATS TO HABITAT INTEGRITY:**

This parcel is approximately 4.8 acres in size. The northern portion has been developed to support City's water supply system facilities, including two cylindrical steel water storage tanks and a pump house. The water system facilities are enclosed by an existing chain-link fence. The remainder of the parcel is undeveloped and has a vegetative cover of mature conifer and deciduous trees, but is bordered on all sides by development (see Critical Areas Report). An established trail exists along the south end. Noise from the adjacent playgrounds/fields and the water pump house is noticeable throughout the parcel.

### **OTHER NOTES:**

Within the proposed lease area, a total of 16 trees have been flagged for removal (some with numbered metal tags attached) and consists of 7 cedars, 7 Douglas-firs, and 2 alders. Recommendations: (1) Retain snag if possible near clearing boundary, (2) move existing dead/down logs, intact to degree possible, to areas outside of lease area boundary; (3) Provide 3 new logs >15 inches diameter and at least 10 feet in length, and place outside of lease area boundary, and (4) clear during fall/winter months to avoid general avian species nesting periods.

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**ATTACHMENT 2**

**PHOTOS OF THE SUBJECT SITE**





**Photo 1.** Site Vicinity



**Photo 2.** Existing Downed Woody Material within the Proposed Lease Site Boundary.



**Photo 3.** Invasive species documented throughout parent parcel (English Ivy).



**Photo 4.** Existing Snag with old nest holes and evidence of Pileated Woodpecker Foraging



**Photo 5.** Existing trail located near south end of parent parcel; note understory vegetation.



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## **ATTACHMENT 3**

### **WDFW PHS Online Mapper Output**



# WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

## PRIORITY HABITATS AND SPECIES REPORT

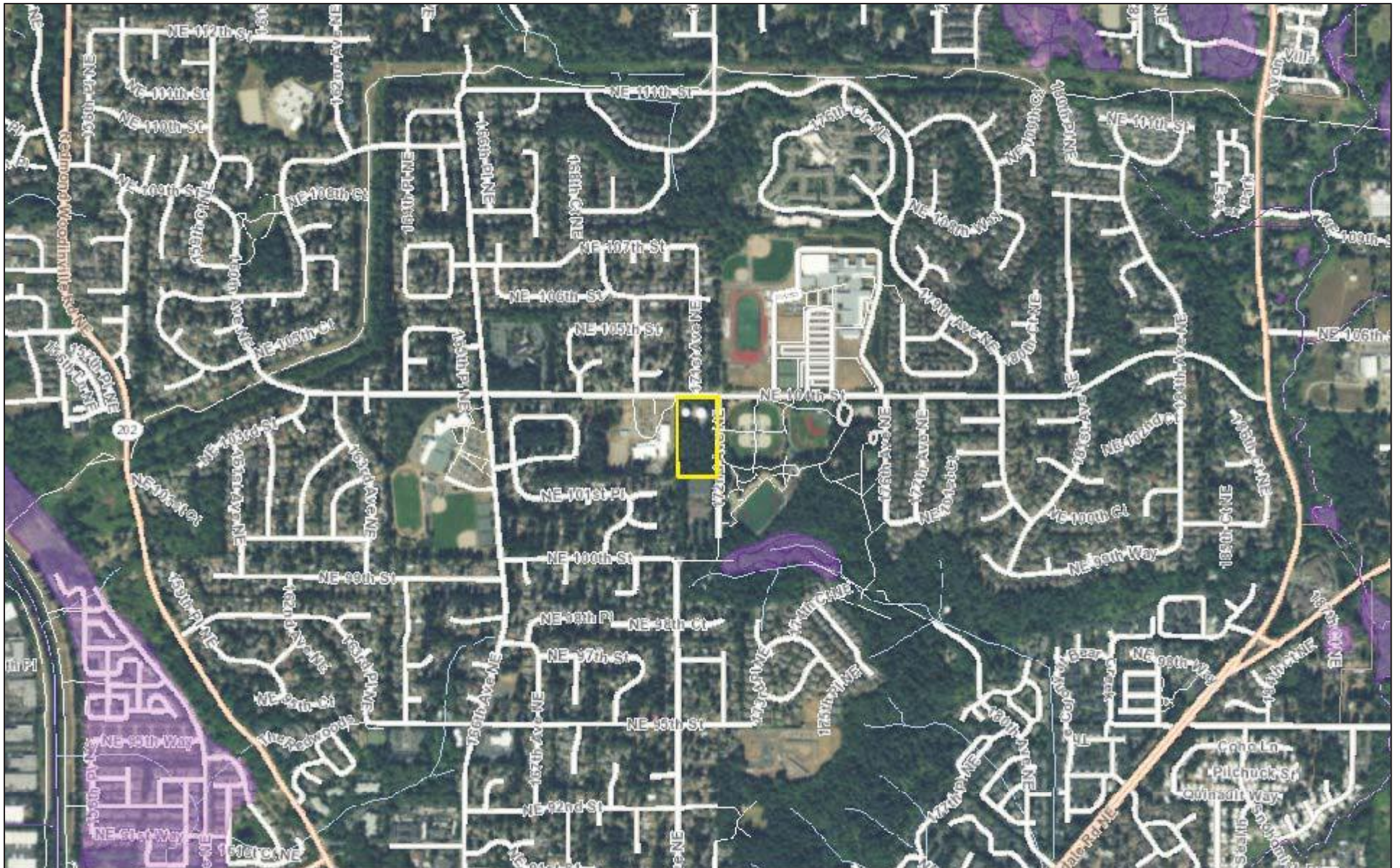
SOURCE DATASET: PHSPublic  
REPORT DATE: 08/08/2016 3.04

Query ID: P160808150354

| Common Name     | Site Name      | Priority Area          | Accuracy | Federal Status     | Sensitive Data | Source Entity |
|-----------------|----------------|------------------------|----------|--------------------|----------------|---------------|
| Scientific Name | Source Dataset | Occurrence Type        |          | State Status       | Resolution     | Geometry Type |
|                 | Source Record  | More Information (URL) |          | PHS Listing Status |                |               |
| Notes           | Source Date    | Mgmt Recommendations   |          |                    |                |               |

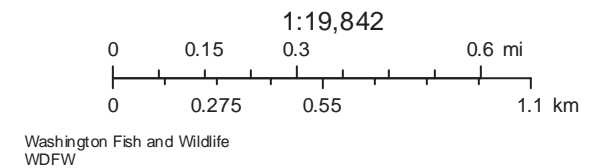
DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

# WDFW Test Map



August 8, 2016

- |   |                      |   |           |   |          |
|---|----------------------|---|-----------|---|----------|
|  | PHS Report Clip Area |  | AS MAPPED |  | TOWNSHIP |
|  | PT                   |  | SECTION   |  | QTR-TWP  |
|  | LN                   |   |           |   |          |







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**ATTACHMENT B**

**WETLANDS CRITICAL AREAS MAPS**





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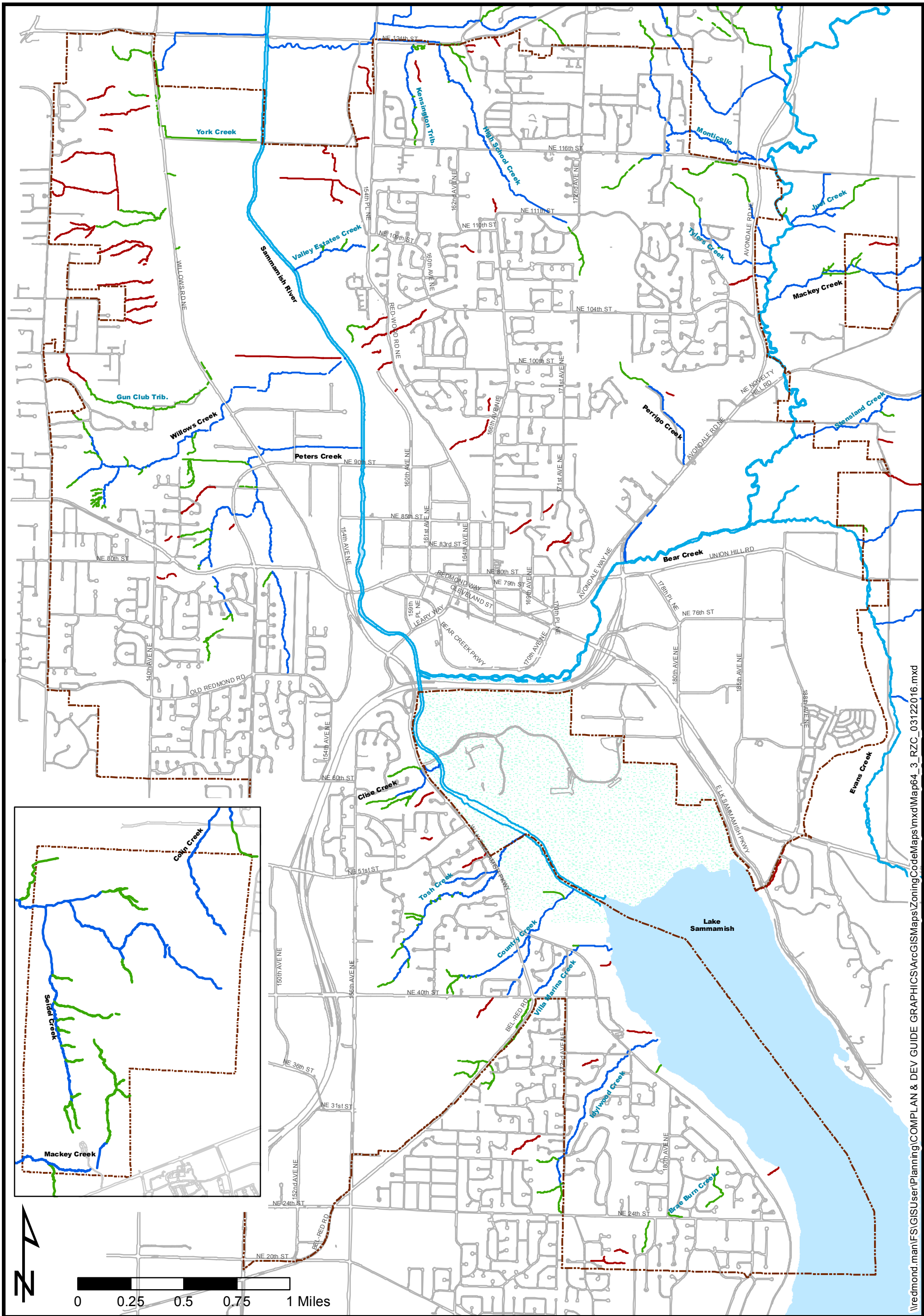
**ATTACHMENT C**

**FREQUENTLY FLOODED AREAS CRITICAL AREAS MAP**  
**&**  
**STREAMS CLASSIFICATIONS MAP**









\\redmond.man\FS\GISuser\Planning\COMPLAN & DEV GUIDE GRAPHICS\ArcGIS\Maps\ZoningCode\Maps\Map64\_3\_RZC\_03122016.mxd



## City of Redmond

**Critical Areas Map**  
**Effective: 3/12/2016**

**Stream** Official USGS Stream Name  
**Stream** Informal Stream Name

- Class I Stream
- Class II Stream
- Class III Stream
- Class IV Stream

## Map 64.3 Streams Classification

Sources:  
City of Redmond Public Works, Natural Resources Division  
City of Redmond GIS Services  
Washington Trout / Wild Fish Conservancy  
King County GIS

Note: This map shall be used as a general guide representing the approximate location of streams, per RZC 21.64.010(E)(2). The map does not necessarily ensure the presence or absence of streams. In the event of a conflict between the map and the criteria of the Critical Areas Ordinance (CAO), the criteria shall prevail. Consult the CAO (RZC 21.64) for reporting requirements

Note: Gaps in illustrated streams may indicate culverts, pipes, etc.

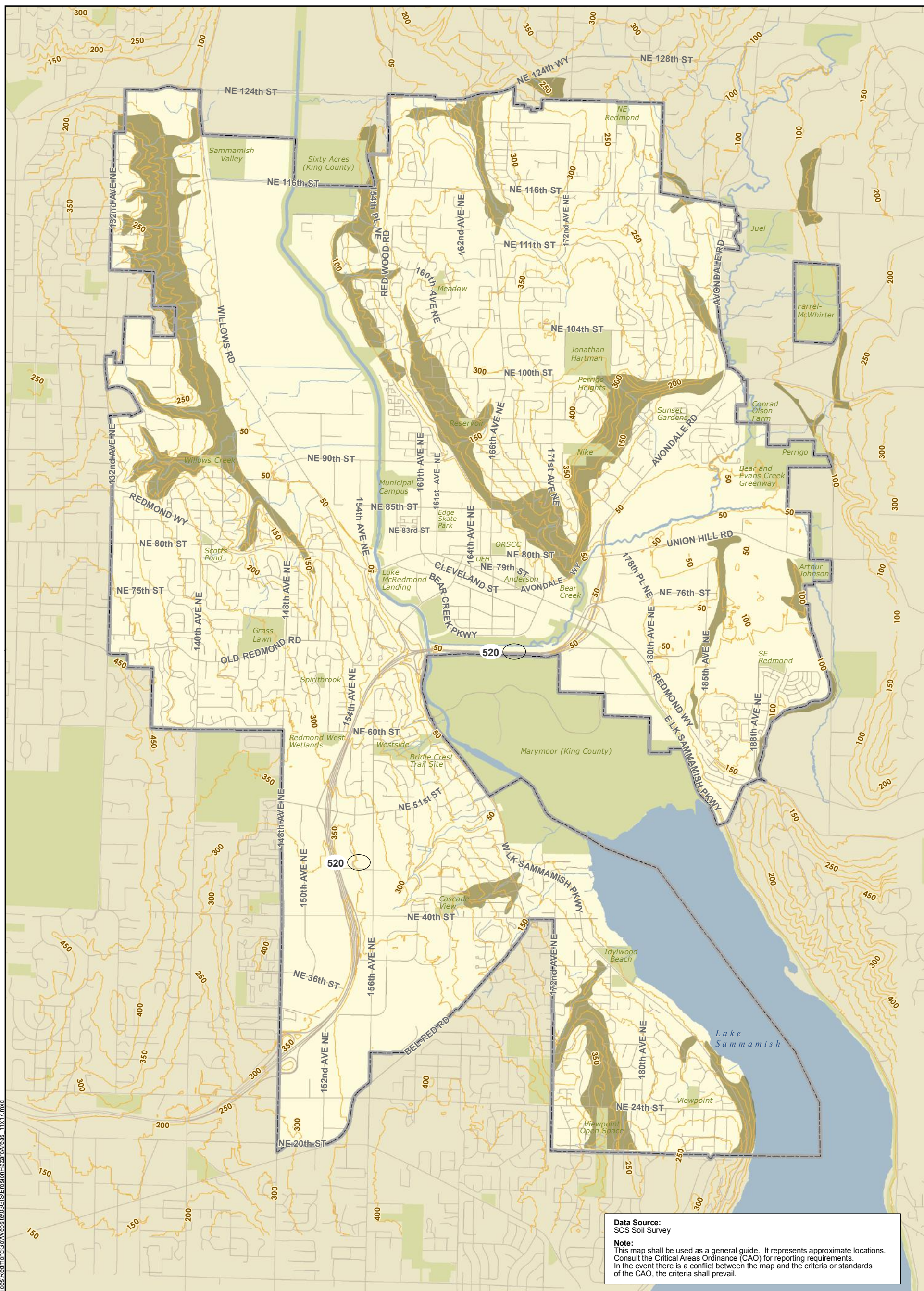
Note: Informal stream names may not conform to USGS policies and may change in the future.

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**ATTACHMENT D**

**EROSION HAZARD AREAS, LANDSLIDE HAZARDS, SEISMIC HAZARD AREAS MAPS**



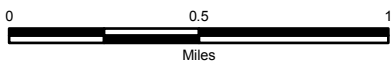


## Erosion Hazard Areas

## Critical Areas Map

City of Redmond, Washington

Effective: 05/28/2005



## Contour

## Erosion Hazard Area

City Limit



## Park and Open Space

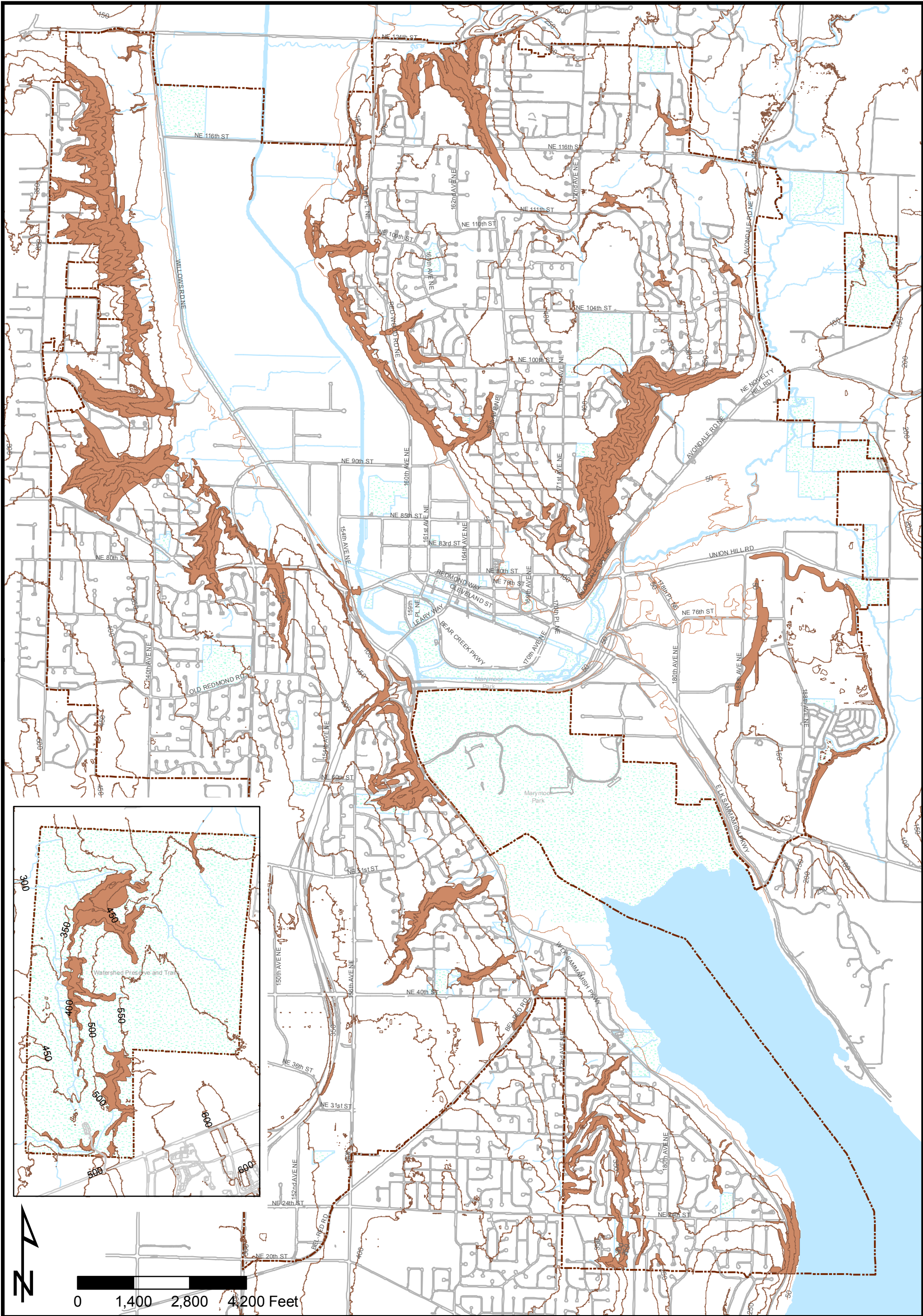
Water



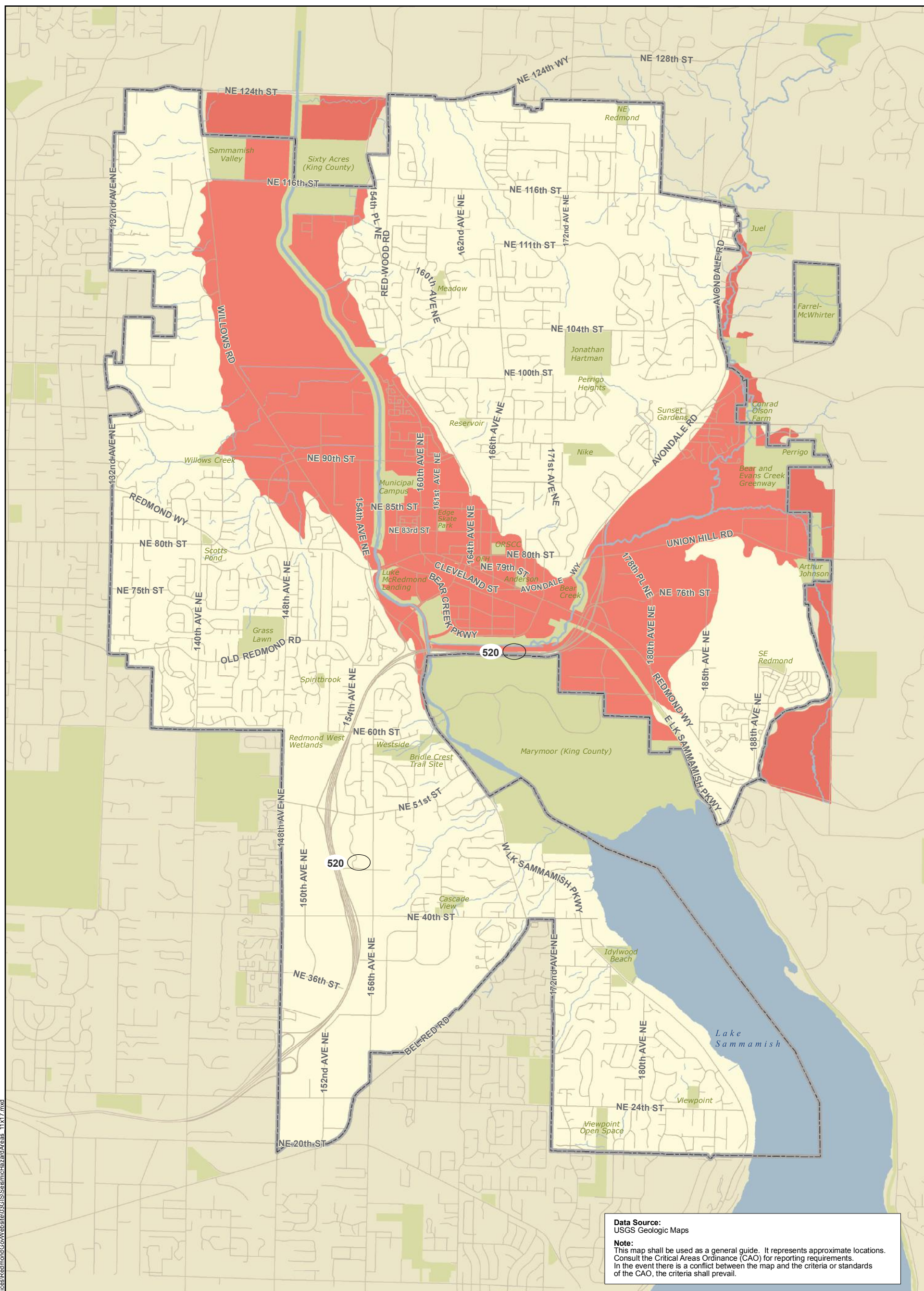
Disclaimer: This map is created and maintained by GIS Services Group, Finance and Information Services, City of Redmond, Washington, for reference purposes only.

The City makes no guarantee as to the accuracy of the features shown on this map.









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The City makes no guarantee as to the accuracy of the features shown on this map.

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**ATTACHMENT E**

**LEVEL ONE HYDROGEOLOGIC ASSESSMENT**



**TETRA TECH**

August 29<sup>th</sup>, 2016

Sarah Telschow, AICP  
Odelia Pacific Corporation  
5506 6<sup>th</sup> Avenue South, Suite 202  
Seattle, WA 98108

**SUBJECT: Level One Hydrogeologic Assessment  
PSERN – Education Hill  
Redmond, Washington  
Tetra Tech Project No. 114-571049**

Dear Ms. Telschow:

The City of Redmond has requested a Level One Hydrogeologic Assessment for the proposed Education Hill communications tower site located at 10365 172<sup>nd</sup> Avenue NE in the City of Redmond, in urban King County, Washington. King County is proposed to construct a 170-foot high steel monopole structure and associated equipment for the Puget Sound Emergency Radio Network (PSERN). The facility will be constructed within an approximately 50-foot by 40-foot fenced lease area. Following is a discussion of the required information for the Level One Hydrogeologic Assessment based on Redmond Zoning Code (RZC) critical areas regulations (RZC 21.64, Appendix 1, F.4).

*a) Geologic & Hydrogeologic Characteristics of the Site*

The project site is underlain by compact glacial till (commonly referred to as “hardpan”) consisting primarily of a non-sorted mixture of clay, silt, sand, pebbles, and cobbles, with some lenses of sorted, stratified sand and gravel. Internal drainage is reduced by the sandy to clayey till and it typically perches the water table for much of the year. Water tends to percolate readily down through the weathered, loose, sandy upper 4 to 6 feet, but perches and moves laterally along the buried unweathered ‘hardpan’ surface. These conditions can result in swampy areas on flat areas of hills, ridge tops, and uplands, and areas of saturated weathered till on hillsides during winter and spring.

(Minard, J.P., and Booth, D.B., 1988, Geologic map of the Redmond quadrangle, King County, Washington: U.S. Geological Survey, Miscellaneous Field Studies Map MF-2016, scale 1:24,000)

*b) Groundwater Information*

Depth of water table in the site area varies greatly throughout the year due to perched water tables within the till deposit. Well logs throughout the area have static water levels ranging from 38 to 70 feet below ground surface. The site is located within a groundwater recharge zone and flow is generally down gradient toward the east.





*c) Currently available data on wells and springs within 1,300 ft of site.*

The Department of Ecology for the State of Washington has two water well records located within 1,300 feet of the proposed site. The well records (attached) indicate the wells were decommissioned in 2008.

*d) Location of other critical areas, including surface waters within 1,300 ft of site.*

Surface Water located within 1,300 feet of the project site include:

- A small pond is located approximately 800 feet to the west on the Mann Elementary school property.
- The head of Perigo Creek is located approximately 1,200 feet southeast of the project site within Hartman Park.

No other critical areas were identified within 1,300 feet of the project site.

*e) Historic Water Quality Data*

No historic water quality data is available for the area to be affected by the proposed activity.

*f) Best Management Practices (BMP) proposed to be utilized*

On-site BMPs will consist of temporary erosion/sediment control silt fences during construction, and consist of sheet flow dispersion post-construction. All impervious areas on the site will be managed with sheet flow, including the equipment shelter, leased area, and access road. Cross slopes along the access road and leased area will be a minimum of 2%, and runoff will be dispersed into vegetated buffers and soil amendments as shown in attached project plan Sheets C1.1, C2.1 and C3.1.

Regarding fuel storage, King County is proposing to install a 2,000 gallon aboveground fuel storage tank. The proposed tank meets secondary containment requirements. During fueling activities, drip pans or absorbent materials will be placed under all potential drip and spill locations; spill control measures/spill kits will be placed near the tank and any liquid transfer areas; and a spill control plan will be available.

If you have any questions, please contact myself or Cole Duncan at 406-543-3045.

Respectfully submitted,

**TETRA TECH**

Jeremy Dierking, P.E.  
Project Geotechnical Engineer

Attachments:

Water Well Report No. 329981 and No. 329982  
Education Hill Civil Drawings C1.1-C3.1









SW 1/4, SECTION 36, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M.

EDUCATION HILL

10365 172ND AVE NE

REDMOND, WA 98052

APPLICANT

ODELIA PACIFIC CORP  
5506 6TH AVE S, SUITE 202  
SEATTLE, WA 98108  
206.490.3804  
CONTACT: BRYSON BURGHARDT

CONSULTANTS

ARCHITECT  
CAMP & ASSOCIATES  
19401 40TH AVE W, SUITE 304  
LYNNWOOD, WA 98036  
425.740.6390  
CONTACT: ERIC CAMP

CIVIL ENGINEER  
CG ENGINEERING  
250 4TH AVE S, SUITE 200  
EDMONDS, WA 98020  
425.778.8500 FAX 778.5536  
CONTACT: JARED UNDERBRINK

SURVEYOR  
LDC  
14201 NE 200TH ST #100  
WOODINVILLE, WA 98072  
425.806.1869

LEGAL DESCRIPTION

THE EAST HALF OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 36, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M., IN KING COUNTY, WASHINGTON:

EXCEPT THE NORTH 30 FEET THEREOF FOR ROAD AS CONVEYED TO THE CITY OF REDMOND BY DEED RECORDED UNDER AUDITORS'S FILE NO. 5446197

SITUATE IN THE CITY OF REDMOND, COUNTY OF KING, STATE OF WASHINGTON

DATUM

ELEVATION ESTABLISHED FROM GPS DERIVED ORTHOMETRIC HEIGHTS (NAVD 88), APPLYING GEOID 09 SEPARATIONS USING WSRN RTK NETWORK SOLUTION. ACCURACY MEETS OR EXCEEDS 1A STANDARDS AS DEFINED ON THE FAA ASAC INFORMATION SHEET 91-003.

SITE BENCHMARK

SITE BENCHMARK  
RIM OF EXISTING CATCH BASIN AS SHOWN  
ELEV = 399.63'

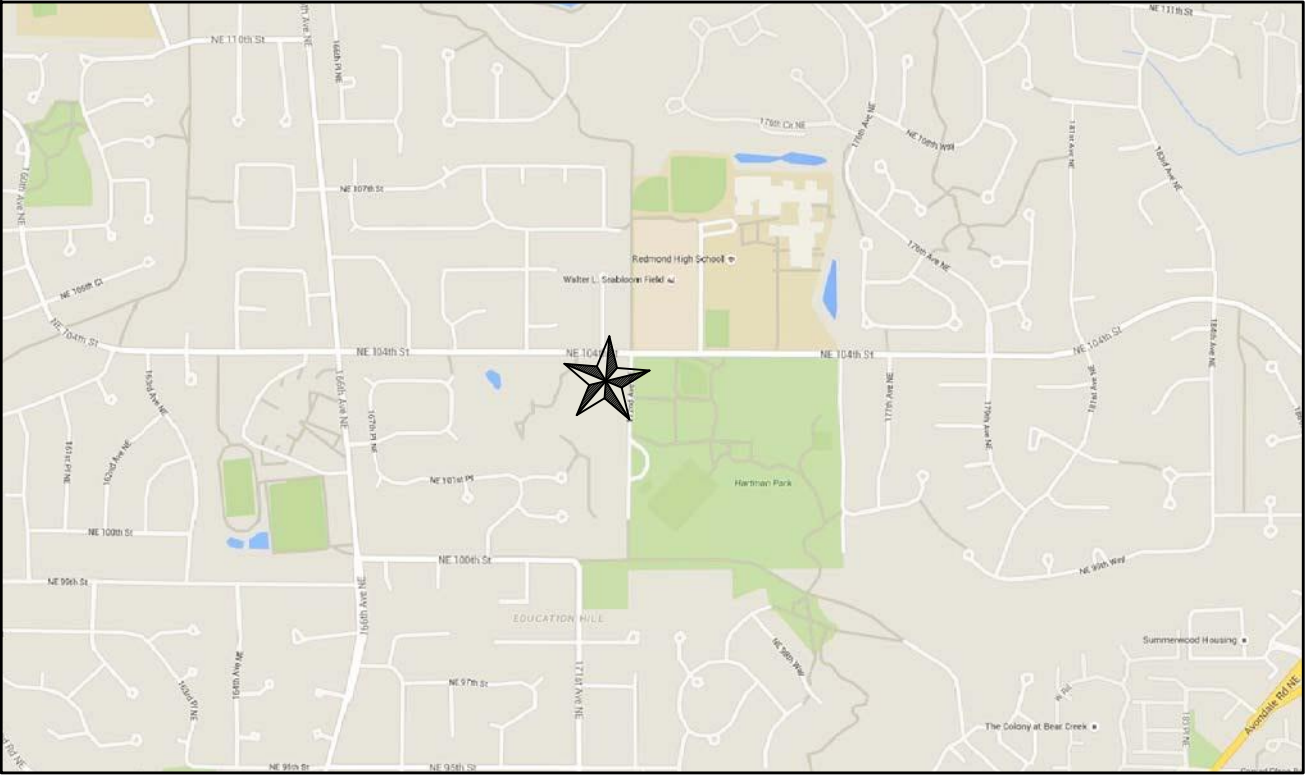
PARCEL NUMBER

3626059031

ZONING

R6

| SHEET INDEX |                                |
|-------------|--------------------------------|
| C1.1        | COVER SHEET & GENERAL NOTES    |
| C2.1        | TEMPORARY EROSION CONTROL PLAN |
| C3.1        | GRADING & DRAINAGE PLAN        |



VICINITY MAP  
NTS ★ = PROJECT SITE



GENERAL NOTES

- CLEARING, GRADING AND TEMPORARY EROSION CONTROL PLANS**
- ALL WORK AND MATERIALS TO BE PER CITY OF REDMOND STANDARDS.
  - KEEP OFF-SITE STREETS CLEAN AT ALL TIMES. FLUSHING STREETS SHALL NOT BE ALLOWED. ALL STREETS SHOULD BE SWEPT.
  - ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES MAY BE REQUIRED BY CITY INSPECTOR.
  - WHEN WORK IS STOPPED/COMPLETED IN AN AREA, THE CITY INSPECTOR MAY REQUIRE POSTCONSTRUCTION EROSION CONTROL INCLUDING SEEDING OR OTHER MEASURES.
  - LOCATIONS SHOWN OF EXISTING UTILITIES ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE CORRECT LOCATIONS TO AVOID DAMAGE OR DISTURBANCE.
  - IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN STREET USE AND OTHER RELATED PERMITS PRIOR TO ANY CONSTRUCTION.
  - ALL GROUND COVER IS TO REMAIN UNDISTURBED OUTSIDE OF CLEARING AREAS.
  - THE TEMPORARY EROSION/SEDIMENT CONTROLS SHALL BE INSTALLED, INSPECTED, AND OPERATING BEFORE ANY GRADING OR EXTENSIVE LAND CLEARING. THESE CONTROLS MUST BE SATISFACTORILY MAINTAINED UNTIL CONSTRUCTION AND LANDSCAPING ARE COMPLETE.
  - TIE IMPERVIOUS SURFACES (ROOF, STREETS, DRIVEWAYS, ETC.) TO COMPLETED DRAINAGE SYSTEM AS SOON AS POSSIBLE.
  - A PRE-CONSTRUCTION MEETING WITH THE CONSTRUCTION DIVISION AND ALL PERMITS MUST BE COMPLETED BEFORE START OF CONSTRUCTION.
  - CLEARING LIMITS SHALL BE LOCATED BY A LICENSED CIVIL ENGINEER OR LAND SURVEYOR.
  - APPROVAL OF THIS TEMPORARY EROSION/SEDIMENTATION CONTROL (TESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN.
  - THIS APPROVAL FOR TESC IS VALID FOR CONSTRUCTION BETWEEN MAY 1 AND SEPTEMBER 30. THIS APPROVAL FOR TESC IS NOT VALID FOR THE RAINY SEASON (OCTOBER 1 THROUGH APRIL 30).
  - REMOVE ALL TESC MEASURES ONCE ALL WORK IS COMPLETED AND SITE IS PERMANENTLY STABILIZED.

| LEGEND                 |                          |                       |  |
|------------------------|--------------------------|-----------------------|--|
| DESCRIPTION            | EXISTING                 | PROPOSED              | ABBREVIATIONS                              |
| PROPERTY LINE          | =====                    | =====                 | ABN ABANDONED                              |
| ADJACENT PROPERTY LINE | -----                    | -----                 | BLDG BUILDING                              |
| CENTERLINE             | =====                    | =====                 | BOW BOTTOM OF WALL                         |
| CLEARING LIMITS        | =====                    | =====                 | CL CENTERLINE                              |
| SILT FENCE             | ----- X -----            | ----- X -----         | CB CATCH BASIN                             |
| CONTOUR LINE           | ----- 100 -----          | ----- 100 -----       | CMP CORRUGATED METAL PIPE                  |
| FENCE                  | ----- □ -----            | ----- □ -----         | CO CLEANOUT                                |
| SANITARY SEWER LINE    | ----- → -- SS -- → ----- | ----- → SS -- → ----- | CONC CONCRETE                              |
| MANHOLE                | ----- (M) -----          | ----- (M) -----       | CONST CONSTRUCTION                         |
| STORM DRAIN MAIN       | ----- → -- SD -- → ----- | ----- → SD -- → ----- | CP CONCRETE PIPE                           |
| STORM DRAIN PIPE       | ----- → -----            | ----- → -----         | CU YD CUBIC YARD                           |
| ROOF DRAIN             | ----- R -----            | ----- R -----         | DDCVA DOUBLE DETECTOR CHECK VALVE ASSEMBLY |
| FOOTING DRAIN          | ----- F -----            | ----- F -----         | DI DUCTILE IRON PIPE                       |
| PRESSURE LINE          | ----- P -----            | ----- P -----         | DIA DIAMETER                               |
| CATCH BASIN (TYPE 1)   | ----- □ -----            | ----- ■ -----         | DIP DUCTILE IRON PIPE                      |
| CATCH BASIN (TYPE 2)   | ----- (C) -----          | ----- (C) -----       | EA EACH                                    |
| CLEANOUT               | ----- (O) -----          | ----- (O) -----       | EJ EXPANSION JOINT                         |
| CLEANOUT AND WYE       | ----- (O) -----          | ----- (O) -----       | ELEV ELEVATION                             |
| GRADE BREAK            | -----                    | -----                 | EOP EDGE OF PAVEMENT                       |
| SURFACE SWALE          | ----- > -----            | ----- > -----         | EX EXISTING                                |
| DRAINAGE ARROW         | ----- → -----            | ----- → -----         | FDC FIRE DEPT. CONNECTION                  |
| WATER LINE             | ----- WA -----           | ----- WA -----        | FFE FINISHED FLOOR ELEVATION               |
| WATER METER            | ----- (M) -----          | ----- (M) -----       | FH FIRE HYDRANT                            |
| FIRE HYDRANT           | ----- (H) -----          | ----- (H) -----       | FL FLANGE                                  |
| FDC                    | ----- (F) -----          | ----- (F) -----       | FT FEET/FOOT                               |
| PIV                    | ----- (P) -----          | ----- (P) -----       | GV GATE VALVE                              |
| GATE VALVE             | ----- (X) -----          | ----- (X) -----       | HP HIGH POINT                              |
| TEE                    | ----- (T) -----          | ----- (T) -----       | HT HEIGHT                                  |
| 90° BEND               | ----- (B) -----          | ----- (B) -----       | ID INSIDE DIAMETER                         |
| THRUST BLOCKING        | ----- (A) -----          | ----- (A) -----       | IE INVERT ELEVATION                        |
| CAP                    | ----- (C) -----          | ----- (C) -----       | L LENGTH/LINE                              |
| CONCRETE PAVEMENT      | -----                    | -----                 | LCPE LINED CORRUGATED POLYETHYLENE PIPE    |
| ASPHALT PAVEMENT       | -----                    | -----                 | LF LINEAL FOOT                             |
| CRUSHED SURFACING      | -----                    | -----                 | LP LOW POINT                               |
| ROCKERY                | -----                    | -----                 | LT LEFT                                    |
| SPOT ELEVATION         | ----- 20.0 -----         | ----- 20.0 -----      | MAX MAXIMUM                                |
| TELEPHONE LINE         | ----- T -----            | ----- T -----         | MECH MECHANICAL                            |
| POWER LINE             | ----- E -----            | ----- E -----         | MH MANHOLE                                 |
| GAS LINE               | ----- G -----            | ----- G -----         |  |
| SIGN                   | -----                    | -----                 |  |

FLOW CONTROL BMP(S):  
1. SHEET FLOW DISPERSION PER DEPARTMENT OF ECOLOGY BMP T5.12

SUGGESTED TEMPORARY EROSION CONTROL BMPs

REFER TO VOLUME II OF THE 2012 DEPARTMENT OF ECOLOGY MANUAL FOR BMP DETAILS AND FOR ADDITIONAL BMP MEASURES.

- PLASTIC OR METAL FENCE (BMP C103)
- NETS & BLANKETS (BMP C122)
- TEMPORARY & PERMANENT SEEDING (BMP C122)
- PLASTIC COVERING (BMP C123)
- SILT FENCE (BMP C233)
- MULCHING (BMP C121)
- STABILIZED CONSTRUCTION ENTRANCE (BMP C105)
- DUST CONTROL (BMP C140)
- CONCRETE HANDLING (BMP C151)

**CITY OF REDMOND BENCHMARKS**

NO. COR-9138  
3" BRASS DISK IN CONCRETE MONUMENT IN CASE DOWN 0.8', 1.1' WEST OF EAST EDGE OF CONCRETE SIDEWALK ON THE EAST SIDE OF 166TH AVE. NE. +/-47' SOUTH OF THE CENTERLINE OF NE 104TH ST. STAMPED "CITY OF REDMOND BM 34".

PUBLISHED ELEVATION = 321.57 FEET (NAVD-1988).

NO. COR-9179  
3" DIAMETER BRASS DISK IN CONCRETE MONUMENT IN CASE DOWN 0.4', AT THE TOE OF CONCRETE STAIRS AT THE SOUTHEAST CORNER OF REDMOND HIGH SCHOOL, 6.4' NORTH OF NORTH CURBLINE FOR NE 104TH STREET, +/-47' WEST OF THE CENTERLINE OF 176TH AVE. NE. STAMPED "CITY OF REDMOND BM 35".

PUBLISHED ELEVATION = 369.87 FEET (NAVD-1988).

**CITY OF REDMOND HORIZONTAL CONTROL**

POINT NO. 4D-SW AKA GPS90-SD3  
SW CORNER SECTION 36, TOWNSHIP 26 N., RANGE 5 E.  
3" BRASS DISK WITH PUNCH MARK IN CONCRETE MONUMENT IN CASE AT CUL-DE-SAC OF 182ND CT. NE NORTH OF NE 99TH ST.

NORTHING 254103.03  
EASTING 1323128.38

POINT NO. 4D-S  
S 1/4 CORNER SECTION 36, TOWNSHIP 26 N., RANGE 5 E.  
1-1/2" BRASS DISK WITH A CHISELED "X" IN A 4"x4" CONCRETE MONUMENT. MONUMENT IS 10' SOUTH OF PATH ON SOUTH SIDE OF JOHNATHAN HARTMAN PARK AND 2' NORTH OF 30" FIR TREE.

NORTHING 254040.22  
EASTING 1325793.18

APPROVED FOR CONSTRUCTION

FOR: Linda E. De Boldt, P.E.  
Director of Public Works  
City of Redmond

Date: \_\_\_\_\_

Plan Chk Engr: \_\_\_\_\_

Storm: \_\_\_\_\_

Utility: \_\_\_\_\_

Fire: \_\_\_\_\_

Trans / Engr: \_\_\_\_\_

Planning: \_\_\_\_\_

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**CAUTION!**

**CALL BEFORE YOU DIG!**

BURIED UTILITIES EXIST IN THE AREA AND UTILITY INFORMATION SHOWN MAY NOT BE COMPLETE. CONTACT THE ONE- CALL UTILITY LOCATE SERVICE A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION

**1-800-424-5555**



**EDUCATION HILL**  
(NEW BUILD)

**10365 172ND AVE NE  
REDMOND WA 98052**

**ODELIA PACIFIC CORPORATION**

5506 6TH AVE. S., SUITE 202  
SEATTLE, WA 98108  
PHONE: (206) 490-3826  
WWW.ODELIA.COM

**CG ENGINEERING**

250 4TH AVE. S., SUITE 200  
EDMONDS, WASHINGTON 98020  
PHONE (425) 778-8500  
FAX (425) 778-5536

CG PROJECT# 16015.913

PROJECT MANAGER JPU

PREPARED BY ZOS

APPROVED BY GAG

| REV | DATE     | DESCRIPTION        |
|-----|----------|--------------------|
|     |          |                    |
|     |          |                    |
| Δ   | 08/08/16 | PERMIT RESUBMITTAL |
| Δ   | 06/10/16 | PERMIT SUBMITTAL   |

PLAN REVIEWERS SIGNATURE

**ENGINEERS STAMP**

**CHRISTOPHER GUILLEN**  
REGISTERED PROFESSIONAL ENGINEER  
08/08/16

**SHEET NAME**

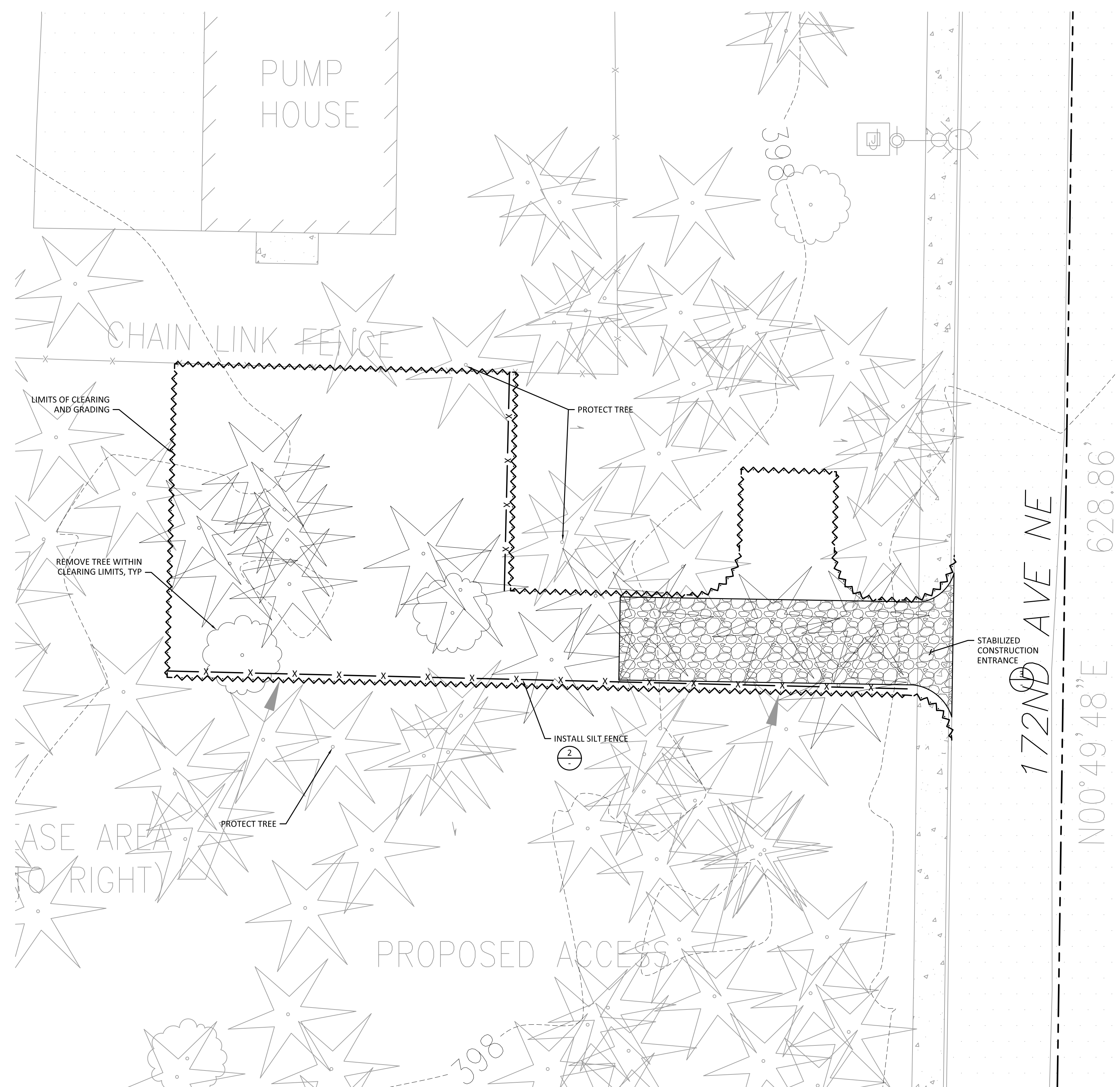
**COVER SHEET AND GENERAL NOTES**

**SHEET NUMBER**

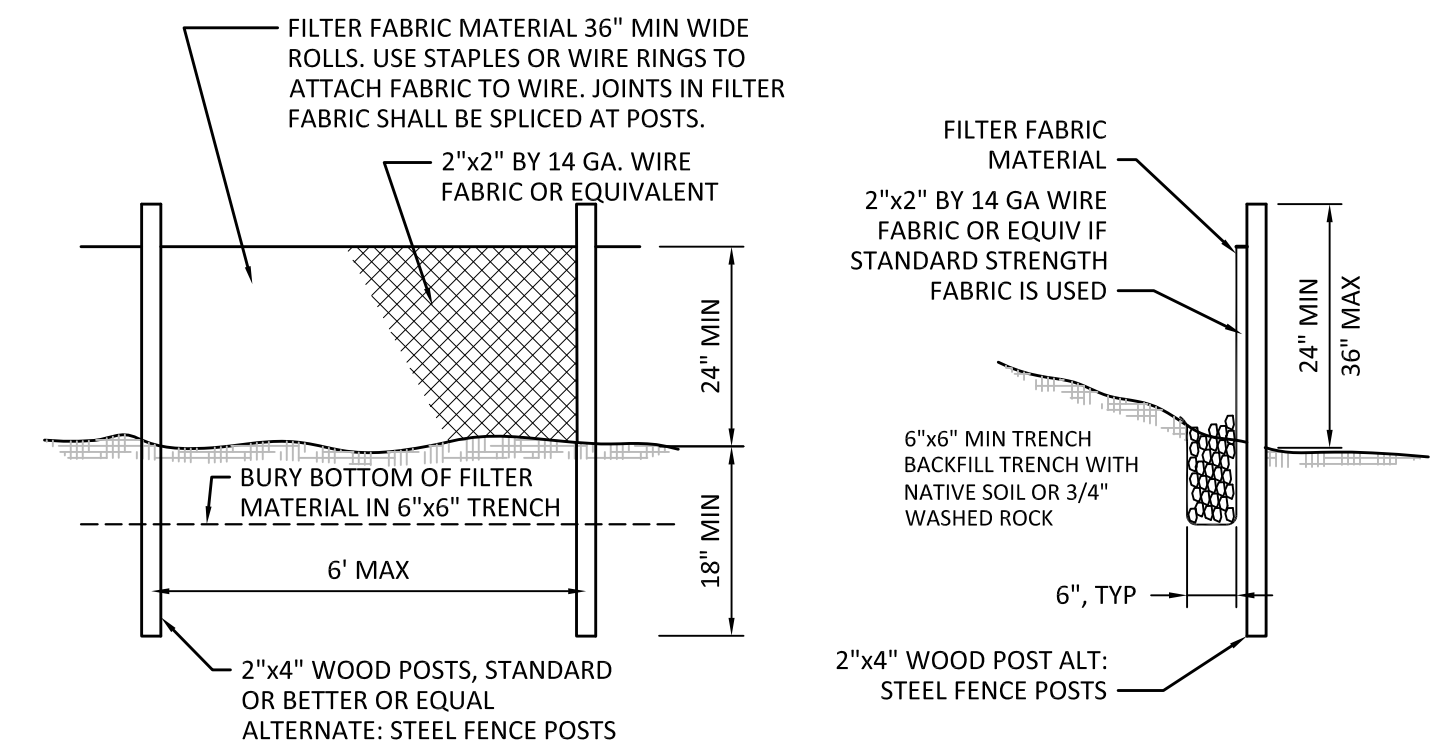
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SW 1/4, SECTION 36, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M.

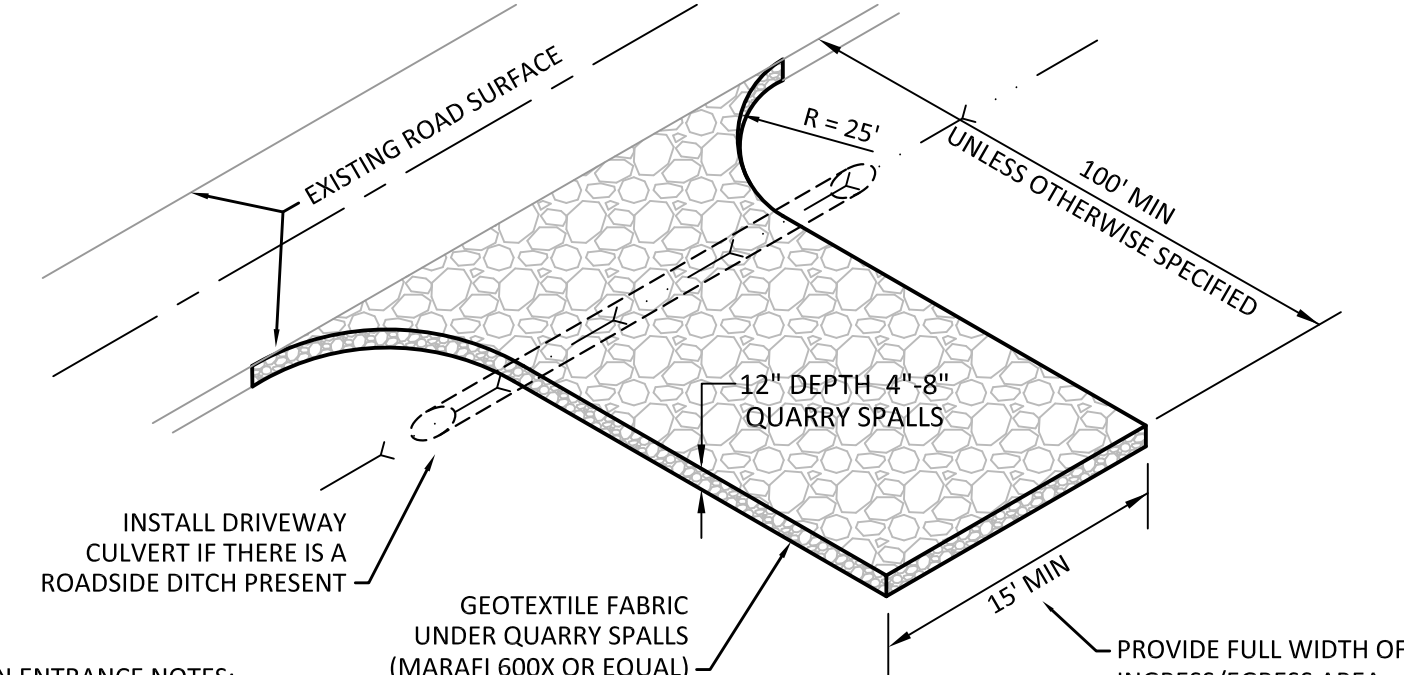


**1** TEMPORARY EROSION CONTROL PLAN  
SCALE: 1" = 10' (22x34)  
1" = 20' (11x17)



- SILT FENCE NOTES:**
1. THE FILTER FABRIC SHALL BE MIRAFI 700X OR APPROVED EQUAL, AND SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6 INCH OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST.
  2. THE SILT FENCE SHALL BE INSTALLED TO FOLLOW THE CONTOURS (WHERE FEASIBLE). THE FENCE POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 18 INCHES).
  3. A SHALLOW TRENCH SHALL BE EXCAVATED, ROUGHLY 6 INCHES WIDE AND 6 INCHES DEEP, UPSLOPE AND ADJACENT TO THE WOOD POSTS TO ALLOW THE LOWER EDGE OF THE FILTER FABRIC TO BE SECURED WITH GRAVEL.
  4. WHEN FILTER FABRIC NOT AS STRONG AS MIRAFI 700X IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE MESH SHALL EXTEND INTO THE SHALLOW TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
  5. THE MIRAFI 700X FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND AT LEAST 18 INCHES OF THE FABRIC SHALL BE BURIED IN THE SHALLOW TRENCH. THE FILTER FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT BE STAPLED TO TREES.
  6. WHEN EXTRA-STRENGTH FILTER FABRIC (MIRAFI 700X OR EQUAL) AND FOUR (4') POST SPACING IS USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF NOTE 5 APPLYING.
  7. THE TRENCH SHALL BE BACKFILLED WITH NATIVE SOIL OR 3/4" -1.5" WASHED ROCK.
  8. FILTER FABRIC FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED. THE NEWLY DISTURBED AREAS RESULTING FROM SILT FENCE REMOVAL SHALL BE IMMEDIATELY SEEDED AND MULCHED, OR OTHERWISE PERMANENTLY STABILIZED TO THE SATISFACTION OF THE CIVIL INSPECTOR.
  9. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
  10. MAINTENANCE: ANY DAMAGED OR CLOGGED FENCE SHALL BE REPAIRED/REPLACED IMMEDIATELY. SEDIMENT MUST BE REMOVED WHEN THE SEDIMENT DEPTH IS 6 INCHES OR GREATER. IF CONCENTRATED FLOWS ARE EVIDENT UPHILL OF THE FENCE, THEY MUST BE INTERCEPTED AND CONVEYED TO A SEDIMENT TRAP OR POND.

**2** SILT FENCE  
SCALE: 1/2" = 1'-0"



- STABILIZED CONSTRUCTION ENTRANCE NOTES:**
1. INSTALLATION: THE AREA OF THE ENTRANCE SHOULD BE CLEARED OF ALL VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL. THE QUARRY SPALLS SHALL BE PLACED TO THE SPECIFIED DIMENSIONS. ANY DRAINAGE FACILITIES REQUIRED BECAUSE OF WASHING SHOULD BE CONSTRUCTED ACCORDING TO SPECIFICATIONS IN THE PLAN. IF WASH RACKS ARE USED, THEY SHOULD BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
  2. AGGREGATE: 4" TO 8" QUARRY SPALLS PER WSDOT STD. SPECS. SEC. 9-13.6.\
  3. ENTRANCE DIMENSIONS: THE AGGREGATE LAYER MUST BE AT LEAST 12" THICK. IT MUST EXTEND THE FULL WIDTH OF THE VEHICULAR INGRESS AND EGRESS AREA. THE LENGTH OF THE ENTRANCE MUST BE AT LEAST 100 FEET (UNLESS OTHERWISE APPROVE BY CIVIL INSPECTOR).
  4. WASHING: IF CONDITIONS ON THE SITE ARE SUCH THAT MOST OF THE MUD IS NOT REMOVED FROM VEHICLE TIRES BY CONTACT WITH THE ROCK ENTRANCE, THEN THE TIRES MUST BE WASHED BEFORE VEHICLES ENTER A PUBLIC ROAD. WASH WATER MUST BE CARRIED AWAY FROM THE ENTRANCE TO A SETTLING AREA TO REMOVE SEDIMENT. A WASH RACK MAY ALSO BE USED TO MAKE WASHING MORE CONVENIENT AND EFFECTIVE.
  5. MAINTAINENCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2" STONE, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEAN OUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAY OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY BY SWEEPING. THE PAVEMENT SHALL NOT BE CLEANED BY WASHING DOWN THE STREET, EXCEPT WHEN SWEEPING IS INEFFECTIVE AND THERE IS A THREAT TO PUBLIC SAFETY.

**3** STABILIZED CONSTRUCTION ENTRANCE  
SCALE: NTS

**APPROVED FOR CONSTRUCTION**

FOR: Linda E. De Boldt, P.E.  
Director of Public Works  
City of Redmond

Date: \_\_\_\_\_

Plan Chk Engr: \_\_\_\_\_

Storm: \_\_\_\_\_

Utility: \_\_\_\_\_

Fire: \_\_\_\_\_

Trans / Engr: \_\_\_\_\_

Planning: \_\_\_\_\_

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(NEW BUILD)  
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**CG ENGINEERING**  
250 4TH AVE. S., SUITE 200  
EDMONDS, WASHINGTON 98020  
PHONE (425) 778-8500  
FAX (425) 778-5536  
CG PROJECT# 16015.913

**PROJECT MANAGER** JPU

**PREPARED BY** ZOS

**APPROVED BY** GAG

| REV | DATE     | DESCRIPTION        |
|-----|----------|--------------------|
|     |          |                    |
| Δ   | 08/08/16 | PERMIT RESUBMITTAL |
| Δ   | 06/10/16 | PERMIT SUBMITTAL   |

**PLAN REVIEWERS SIGNATURE**

**ENGINEERS STAMP**

**SHEET NAME**  
**TEMPORARY EROSION CONTROL PLAN**

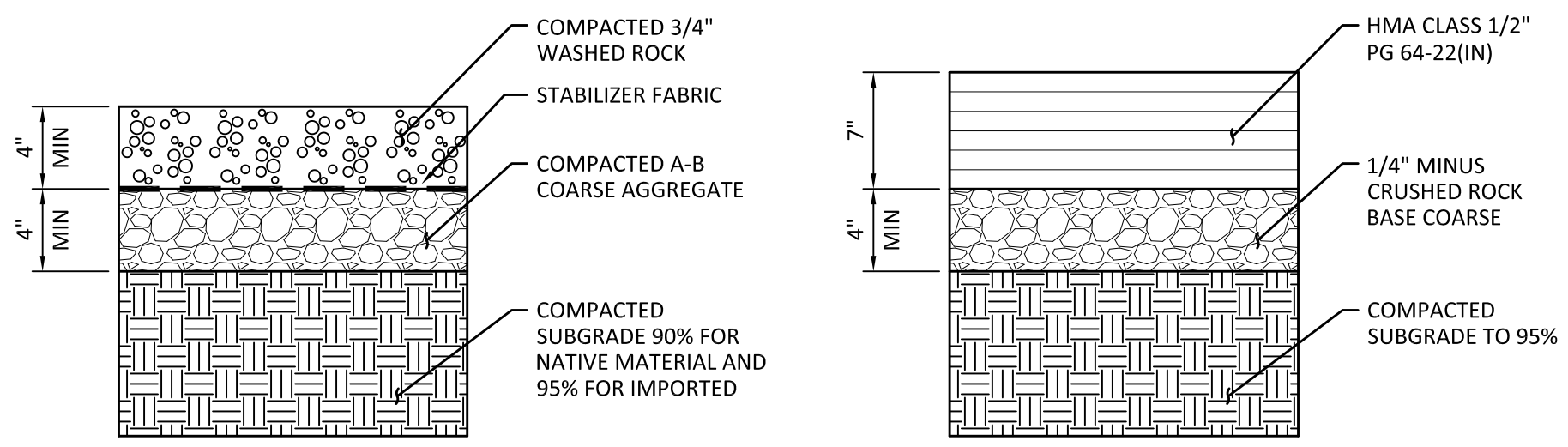
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**C2.1**  
16-0942



SW 1/4, SECTION 36, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M.

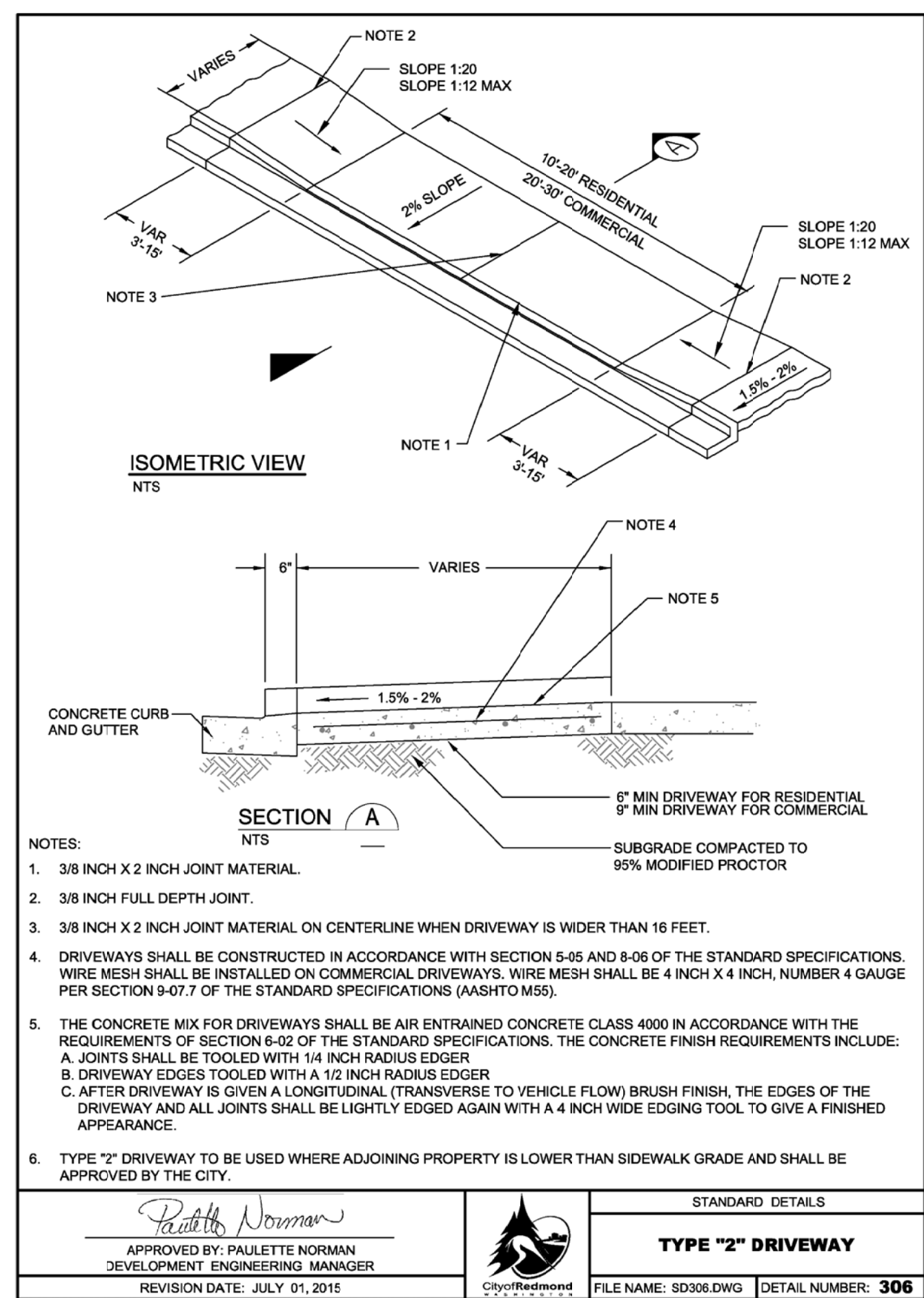
| GRADING QUANTITIES       |                 |
|--------------------------|-----------------|
| TOTAL EXCAVATION (CUT) - | 40 CU YDS TOTAL |
| EMBANKMENT (FILL) -      | 5 CU YDS        |
| TOTAL                    | 45 CU YDS       |

THE QUANTITIES SHOWN ABOVE ARE FOR THE PERMIT PROCESS ONLY. THESE VALUES ARE APPROXIMATE. DO NOT USE FOR BIDDING, PAYMENT, OR ESTIMATING PURPOSES.



2 GRAVEL PAVING DETAIL SCALE: 1" = 1'-0"

3 PAVEMENT DETAIL SCALE: 1" = 1'-0"



4 CITY OF REDMOND STANDARD DETAIL SCALE: NTS

APPROVED FOR CONSTRUCTION

FOR: Linda E. De Boldt, P.E.  
Director of Public Works  
City of Redmond

Date: \_\_\_\_\_

Plan Chk Engr: \_\_\_\_\_

Storm: \_\_\_\_\_

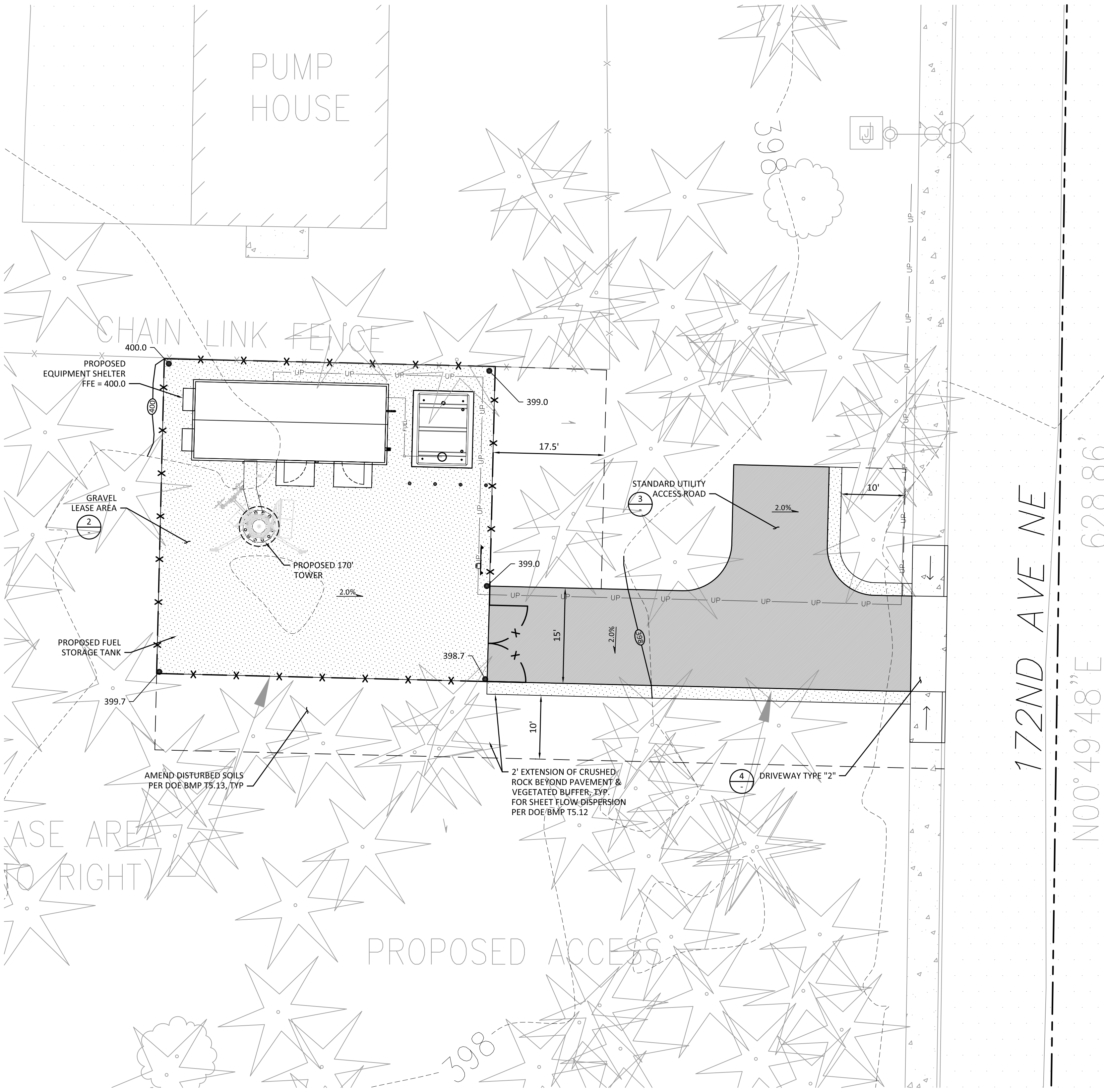
Utility: \_\_\_\_\_

Fire: \_\_\_\_\_

Trans / Engr: \_\_\_\_\_

Planning: \_\_\_\_\_

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1 GRADING AND DRAINAGE PLAN SCALE: 1" = 10' (22x34) 1" = 20' (11x17)



EDUCATION HILL (NEW BUILD) 10385 172ND AVE NE REDMOND WA 98052

ODELIA PACIFIC CORPORATION 5506 6TH AVE. S., SUITE 202 SEATTLE, WA 98108 PHONE: (206) 490-3826 WWW.ODELIA.COM

CG ENGINEERING 250 4TH AVE. S., SUITE 200 EDMONDS, WASHINGTON 98020 PHONE (425) 778-8500 FAX (425) 778-5536 CG PROJECT# 16015.913

PROJECT MANAGER JPU

PREPARED BY ZOS

APPROVED BY GAG

| REV | DATE     | DESCRIPTION        |
|-----|----------|--------------------|
| 1   | 08/08/16 | PERMIT RESUBMITTAL |
| 2   | 06/10/16 | PERMIT SUBMITTAL   |

PLAN REVIEWERS SIGNATURE

ENGINEERS STAMP  
CRAIG GUILLEN  
STATE OF WASHINGTON  
REGISTERED PROFESSIONAL ENGINEER  
08/08/16

SHEET NAME  
GRADING AND DRAINAGE PLAN

SHEET NUMBER  
C3.1



